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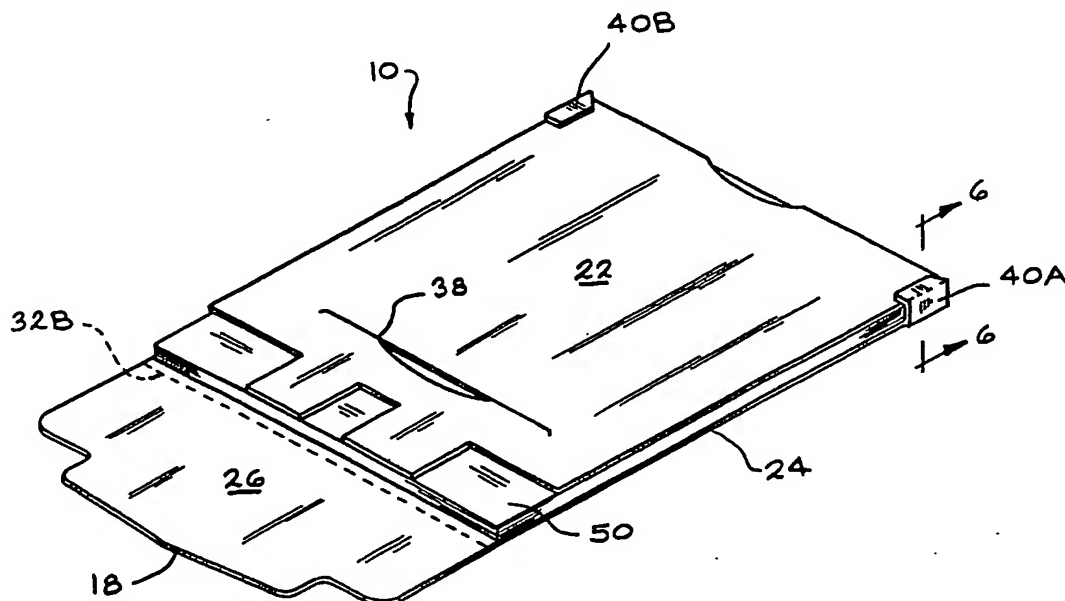
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(54) Title: PAPER CARTRIDGE



(57) Abstract

The present invention discloses and teaches a paper containing cartridge suitable for insertion into a plain paper printing or copying device whereby specialty printing papers may be conveniently inserted and removed from the printing device and stored without the paper therein being subjected to damage.

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1 **PAPER CARTRIDGE**

2
3 **OTHER RELATED APPLICATIONS**

4 This application claims the priority of United States Provisional
5 Application serial no. 60/078,389 filed on March 18, 1998.

6
7 **BACKGROUND OF THE INVENTION**

8 Heretofore printing paper typically used in personal computer printers
9 and plain paper facsimile and copy machines has been supplied in reams,
10 generally consisting of five hundred sheets, over wrapped with a simple
11 protective covering. However smaller quantities of specialty papers, of a higher
12 quality, are in demand by the small office-home office (SOHO) industry for
13 specialized uses.

14
15 With increased use of specialty papers, such as high quality bond,
16 colored, water marked, personal letter heads, special invitations, etc., for special
17 purposes the typical SOHO users find themselves frequently changing the paper
18 in their respective printing devices. Because of such frequent changing of the
19 paper the paper supplies frequently become damaged during the loading and
20 unloading process, or during nonuse storage.

21
22 **SUMMARY OF THE INVENTION**

23 The present invention discloses and teaches a paper storage and supply
24 cartridge that will protect small quantities of printing papers typically used in
25 printing devices, such as personal computer printers, plain paper facsimile
26 machines, document copiers, and the like, while the paper is outside of the
27 printing device and whereby the cartridge, having the paper supply therein, may
28 be placed directly within the paper supply tray of the printing device when use
29 of the paper within the cartridge is desired.

1 The paper cartridge taught herein generally comprises a unitary
2 paperboard blank that enwraps the paper supply stack. The cartridge is open on
3 both sides and at the feed end. The width of the cartridge paperboard thus being
4 identical to that of the paper within the cartridge so that the cartridge will fit
5 within the typical paper supply tray of the associated printing device. The
6 cartridge configuration at the feed end will vary from printing device to printing
7 device and will therefore be configured to cooperate with an associated printing
8 device feed mechanism. Preferably small tabs are provided at the non-feed end
9 of the cartridge extending from the bottom panel to the top panel to provide
10 structural integrity to the cartridge; the tabs are positioned and sized so as not
11 to interfere with the paper tray of the associated printing device.

12

13 Two embodiments are disclosed. The first embodiment teaches a
14 cartridge having an integral feed end protective cover which may be folded back
15 when the cartridge is placed within the paper tray of the printing device. A
16 second embodiment teaches cartridge having no integral protective cover,
17 however the second embodiment preferably includes a protective sheath within
18 which the cartridge may be stored when not in use.

19

20 BRIEF DESCRIPTION OF THE DRAWINGS

21 Figure 1 presents a pictorial view of a paper cartridge, embodying the
22 present invention, and illustrated in its paper protecting, storage configuration.

23

24 Figure 2 presents a plan view of a unitary paperboard blank from which
25 the paper cartridge illustrated in figure 1 is made.

26

27 Figure 3 presents a pictorial view of the first step in forming the
28 paperboard blank, illustrated in figure 2, into the paper cartridge.

29

1 Figure 4 presents a pictorial view of the paper cartridge after the first
2 forming step is performed.

3

4 Figure 5 presents a pictorial view of the second step in forming the final
5 paper cartridge

6

7 Figure 6 is a crosssectional view taken along line 6-6 in figure 1.

8

9 Figure 7 presents a pictorial view of the underside of the paper package,
10 as illustrated in figure 4, showing the package's covering flap being folded
11 backward into its retaining slot.

12

13 Figure 8 presents a pictorial view of the underside of the paper package
14 as illustrated in figure 4 having its covering flap inserted into its receiving slot
15 thereby exposing the paper supply therein for extraction by the associated
16 printing apparatus.

17

18 Figure 9 presents a pictorial of an alternate embodiment of the paper
19 cartridge.

20

21 Figure 10 presents a plan view of a unitary paperboard blank from which
22 the paper cartridge of figure 9 may be manufactured.

23

24 Figure 11 presents a pictorial of the paperboard blank as illustrated in
25 figure 10 being formed about a stack of paper thereby forming the paper
26 cartridge as illustrated in figure 9.

27

1 Figure 12 presents a pictorial view of an optional covering shroud within
2 which the paper package as illustrated in figure 9 may be placed for the greatest
3 protection when not in use as illustrated in figure 13.

4

5 Figure 13 presents a pictorial illustration of the paper package of figure 9
6 being placed within the shroud illustrated in figure 12.

7

8 Figure 14 presents a plan view of the unitary paperboard blank from
9 which the paper cartridge of figure 9 may be manufactured.

10

11 Figure 15 presents a pictorial view of the blank of figure 14 being
12 formed into the paper package of figure 9.

13

14 **DETAILED DESCRIPTION OF THE PRESENT INVENTION**

15 Referring now to figures 1 through 5. Figure 2 presents a plan view of a
16 unitary paperboard blank 20 from which the paper protecting cartridge 10 is
17 made. Blank 20 generally comprises a bottom panel 22, a top panel 24, and a
18 locking flap 26. Bottom panel 22 is separated from top panel 24 by a pair of
19 parallel, scored fold lines 28A and 28B. Similarly a pair of parallel, scored fold
20 lines 32A and 32B separate top cover 24 and locking flap 26. Slots 36 and 38
21 are provided in bottom panel 22 and top panel 24, respectively, to receive
22 therein locking flap 26 as will be described further below. Adhesive tabs 40A
23 and 40B extend from the lower edge of top panel 24 as illustrated in figure 2.
24 Adhesive tabs 40A and 40B each include a pair of parallel, scored fold lines
25 42A, 42B, 42C and 42D as illustrated in figure 2. Score lines 42B and 42C are
26 coincident with the longitudinal edge 46A and 46B of top panel 24.

27

28

29

1 Depending upon the particular plain paper printing device for which the
2 paper cartridge is intended, the bottom panel end configuration 48 may vary
3 from device to device. The particular end configuration 48 identified by broken
4 lines in figure 2 is believed suitable for most ink jet printing devices.

5
6 Figure 3 illustrates the first step in forming blank 20 into the paper
7 cartridge 10, of figure 1, wherein the top panel 24 is folded over top of bottom
8 panel 22, about fold lines 28A and 28B, so as to form a square box like end, see
9 figure 7. It is to be noted that in figure 3, as in the following figures, a stack of
10 paper 50 is shown placed between the bottom and top panels.

11
12 Figure 4 illustrates the paper stack sandwiched between the top panel 22
13 and bottom panel 24. Adhesive tabs 40A and 40B are folded about fold lines
14 42A, 42B, 42C, and 42D, as illustrated in figure 6, and adhesively adhered to
15 top panel 24 thereby completing the cartridge 10. It is to be noted that no
16 adhesive material is to be applied to the [portion of tabs 40A and 40B where
17 those tabs are in contact with the paper stack 50; otherwise the free movement
18 of paper from the stack may be affected.

19
20 As an alternative, integral tabs 40A and 40B may be replaced by a
21 separate, thin, tape like, or strap like, material of minimum thickness to keep the
22 overall width dimension of the cartridge to a minimum so that it easily fits in
23 the printing device paper loading tray. Further such tape like strap may be
24 placed at any preselected location along the longitudinal edge 46A or 46B of the
25 cartridge.

26
27 Referring now to figure 5. The top locking flap 26 is folded about fold
28 lines 32A and 32B with tongue 18 being tucked into slot 38 thereby forming the
29 cartridge into its paper protecting and storage mode as illustrated in figure 1.

1 When the cartridge is to be placed in its intended printing device, the
2 cartridge, as illustrated in figure 1, is flipped over as shown in figure 7, and
3 locking flap 26 is folded, about fold line 34, with tongue 18 being placed inside
4 slot 36 thereby presenting a cartridge configuration, as illustrated in figure 8,
5 suitable for insertion into the paper supply tray of its associated printing device.

6
7 Now referring to figures 9 through 11. Figure 10 presents a plan view of
8 a paperboard blank 100 suitable for forming an alternate embodiment of my
9 paper cartridge as illustrated in figure 9. Blank 100 generally comprises a
10 bottom panel 110, a top panel 112 separated by two parallel, scored fold lines
11 114A and 114B. Adhesive tabs 118A and 118B extend laterally outward from
12 the side edges 116A and 116B of top panel 112 as illustrated in figure 10.
13 Adhesive tabs 118A and 118B include parallel, scored fold lines 120A, 120B
14 and 122A and 122B as illustrated in figure 10. Similar to the first embodiment,
15 as illustrated in figures 1 through 9, the second embodiment also includes an
16 end configuration 124, shown in broken lines in figure 10, that is customized to
17 fit the associated paper printing device paper pickup mechanism. Depending
18 upon the particular printing device and its paper feed mechanism, the end
19 configuration may be changed as necessary.

20
21 Figure 11 illustrates folding blank 100 about fold lines 114A and 114B
22 to form the second embodiment paper cartridge as illustrated in figure 9. The
23 second embodiment as illustrated in figure 9 is similar to that of the first
24 embodiment as illustrated in figure 1 except that the second embodiment of
25 figure 9 does not have the protective end flap 26 of the figure 1 embodiment.

26
27
28

1 However, in place of the foldable end flap 26 of embodiment one, a
2 protective shroud 126 is provided for the cartridge of figure 9 as illustrated in
3 figure 13. The structure and assembly of shroud 126 is illustrated in figures 12
4 through 15.

5
6 Figure 14 presents a plan view of a paperboard blank 130 from which
7 shroud 126 is made. Blank 130 generally comprises a bottom panel 132 and a
8 top panel 134 separated by a pair of parallel, scored fold lines 136A and 136B.
9 Extending laterally outward from top panel 134 are adhesive flaps 136A and
10 136B. Adhesive flaps 136A and 136B include a pair of parallel, scored fold
11 lines 138A, 138B, 142A and 142B as illustrated in figure 14.

12
13 Figure 15 illustrates the first step in forming shroud 126 from blank 130
14 whereby bottom panel 132 is folded about fold lines 136A and 136B after which
15 adhesive flaps 136A and 136B are folded about fold lines 138A, 138B, 140A
16 and 140B and adhesively adhered to bottom panel 132 as illustrated in figure
17 12. To protect cartridge 100 and its paper stock 50 therein cartridge 100 is
18 slipped into shroud 120 as illustrated in fig 13.

19
20 Having described the preferred embodiments of the present invention,
21 and its benefits and advantages, it will be understood by those of ordinary skill
22 in the art that the foregoing description is merely for the purpose of illustration
23 and that numerous substitutions, rearrangements, and modifications may be
24 made in the invention without departing from the scope and spirit of the
25 appended claims.

I claim:

1. A cartridge containing printing paper therein suitable for placing in the paper supply means of a printing device, said cartridge comprising: a unitary paperboard blank folded 180 degrees over itself thereby forming generally parallel bottom and top panels having a squared-off, closed, first end extending between said bottom and top panel and an open, opposite, second end, a stack of printing paper positioned between said bottom and top panel, said top and bottom panels having a width no greater than that of said paper stack.
2. The cartridge as claimed in claim 1 including at least one tab, adjacent said closed end and extending between and affixed to said bottom and top panel whereby said paper stack is restrained from lateral movement between said bottom and top panels.
3. The cartridge as claimed in claim 2 wherein said tab is not a unitary part of said paperboard blank.
4. The cartridge as claimed in claim 3 wherein said tabs are of a thickness less than that of said paperboard blank.
5. The cartridge as claimed in claim 4 wherein said tabs are positioned at preselected locations along the longitudinal edges of said cartridge.
6. The cartridge as claimed in claim 2 including two of said tabs positioned opposite one another, one on each side of said cartridge.

7. The cartridge as claimed in claim 1 wherein said bottom panel and said top panel are of unequal lengths.
8. The cartridge as claimed in claim 1 wherein at least one of said bottom or top panels includes, at said open end, an end configuration unique to and compatible with an associated printing device paper feed mechanism.
9. The cartridge as claimed in claim 1 wherein said top panel includes an extended portion extending beyond said open end and includes means whereby said extended portion may be folded about said open end of said cartridge thereby protecting said paper stack when said cartridge is removed from said printing device and stored for subsequent use.
10. The cartridge as claimed in claim 9 wherein said top panel further includes means whereby said extended portion may be folded back over said top panel thereby exposing said paper stack to the associated printing device's paper feed mechanism.
11. The cartridge as claimed in claim 9 wherein said means whereby said extended portion of said top panel may be folded back over said top panel includes a tongue end on said extended portion and a slot within said bottom panel for receipt of said top panel tongue therein.
12. The cartridge as claimed in claim 10 wherein said means for folding said top panel back over itself includes a tongued end on said extended portion and a slot within said top panel for receipt of said tongue therein.

13. A cartridge assembly containing printing paper therein suitable for placing in the paper supply means of a printing device to supply printing paper to said device, said assembly comprising: a unitary paperboard blank folded 180 degrees over itself thereby forming generally parallel bottom and top panels having a squared-off, closed, first end extending between said bottom and top panel and an open, opposite, second end, a stack of printing paper positioned between said bottom and top panel, said top and bottom panels having a width no greater than that of said paper stack, a paperboard sheath within which said cartridge assembly may be placed when said cartridge is removed from said printing device.

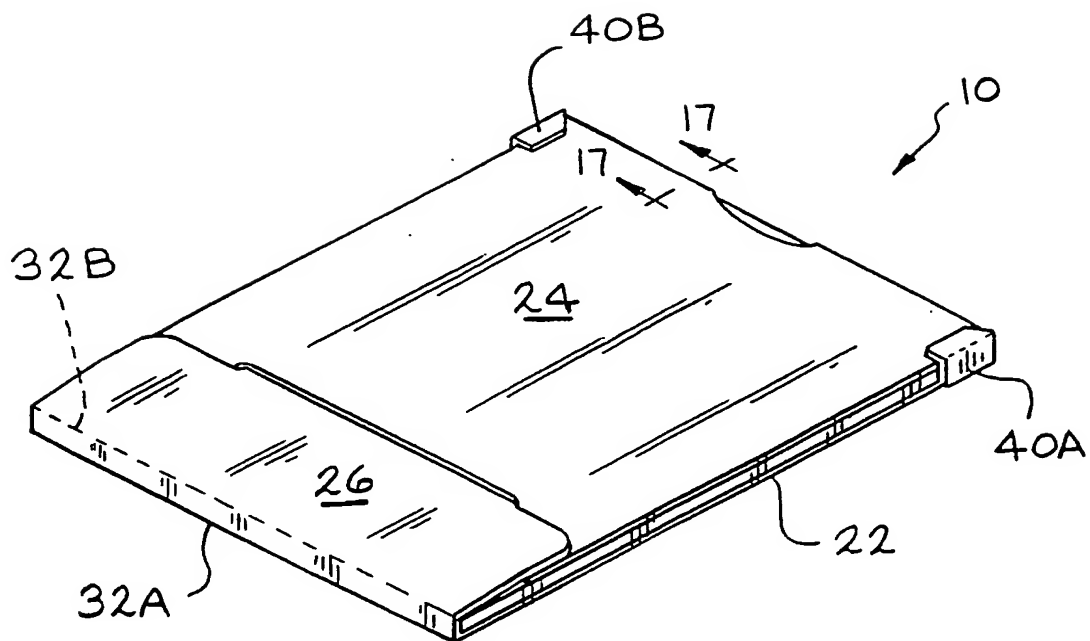


FIG. 1

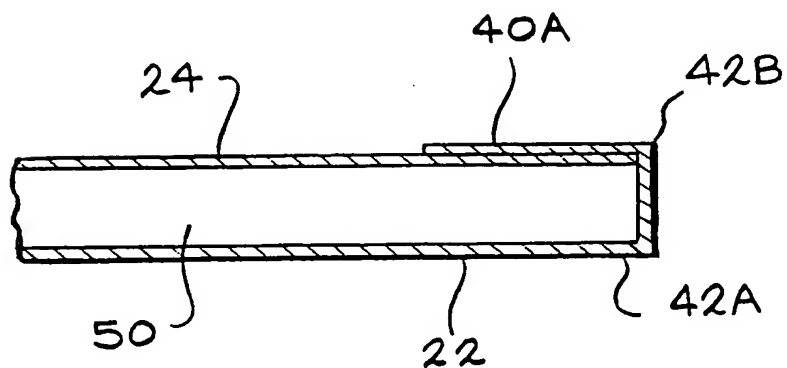
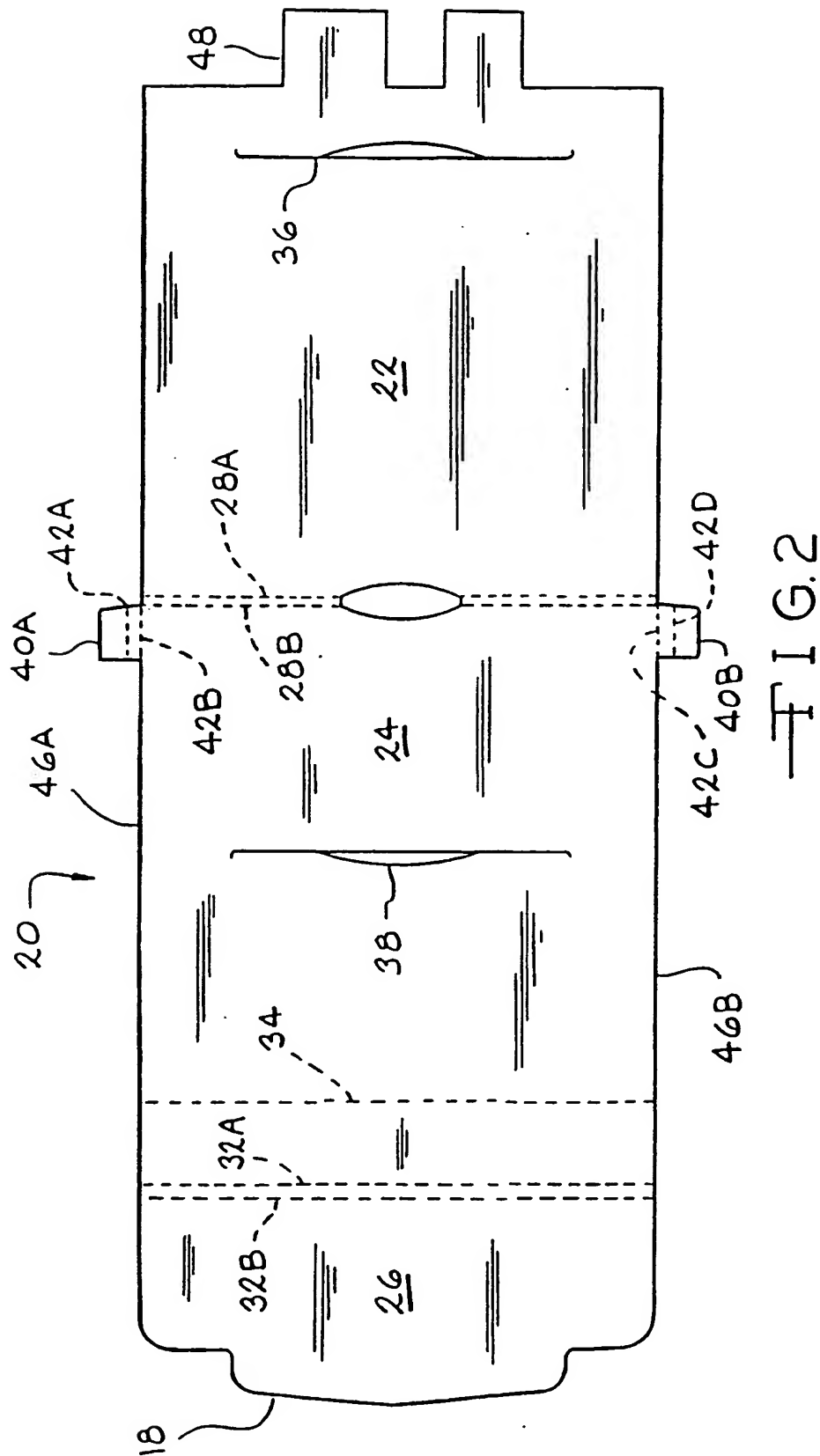


FIG. 6



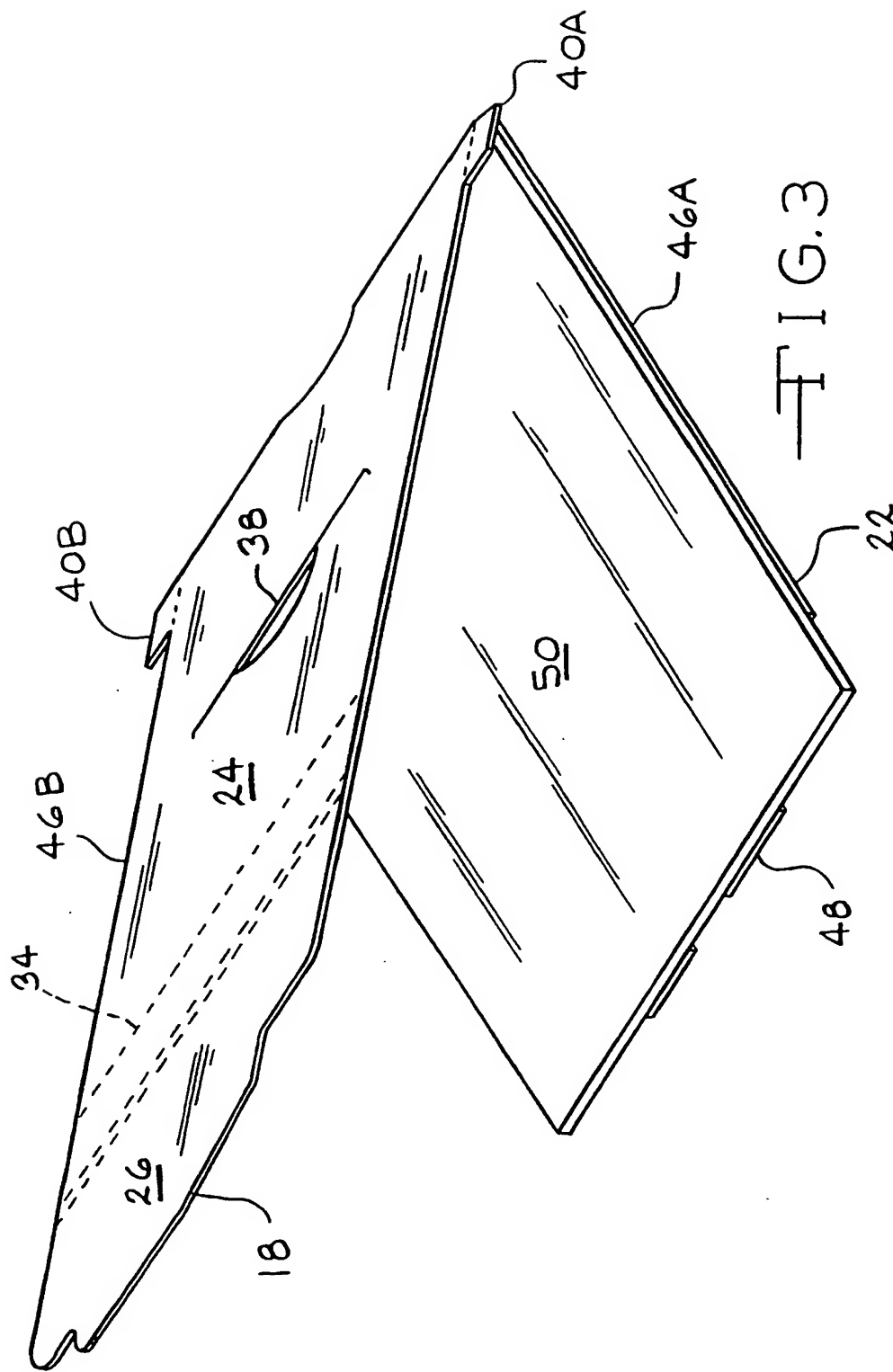
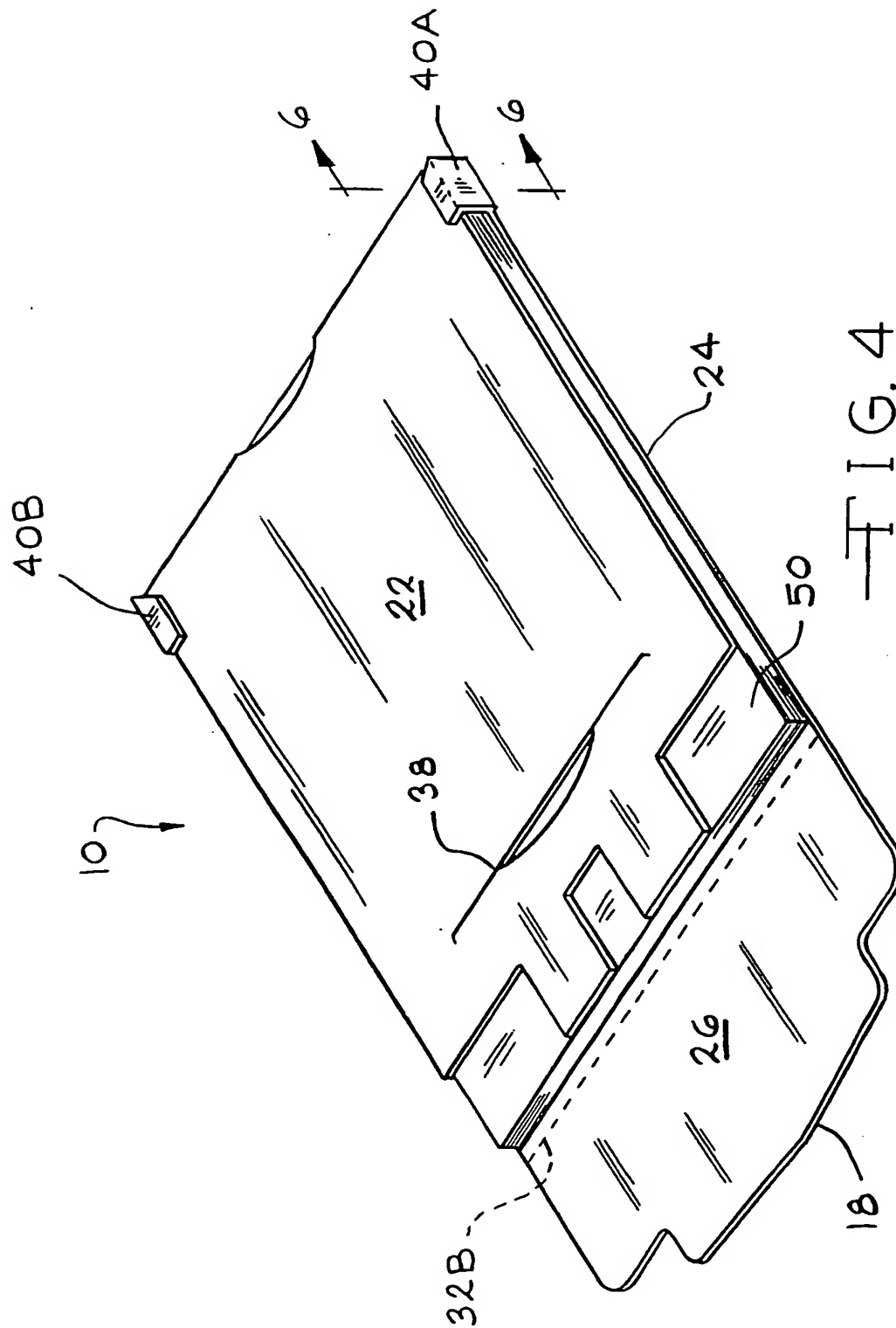
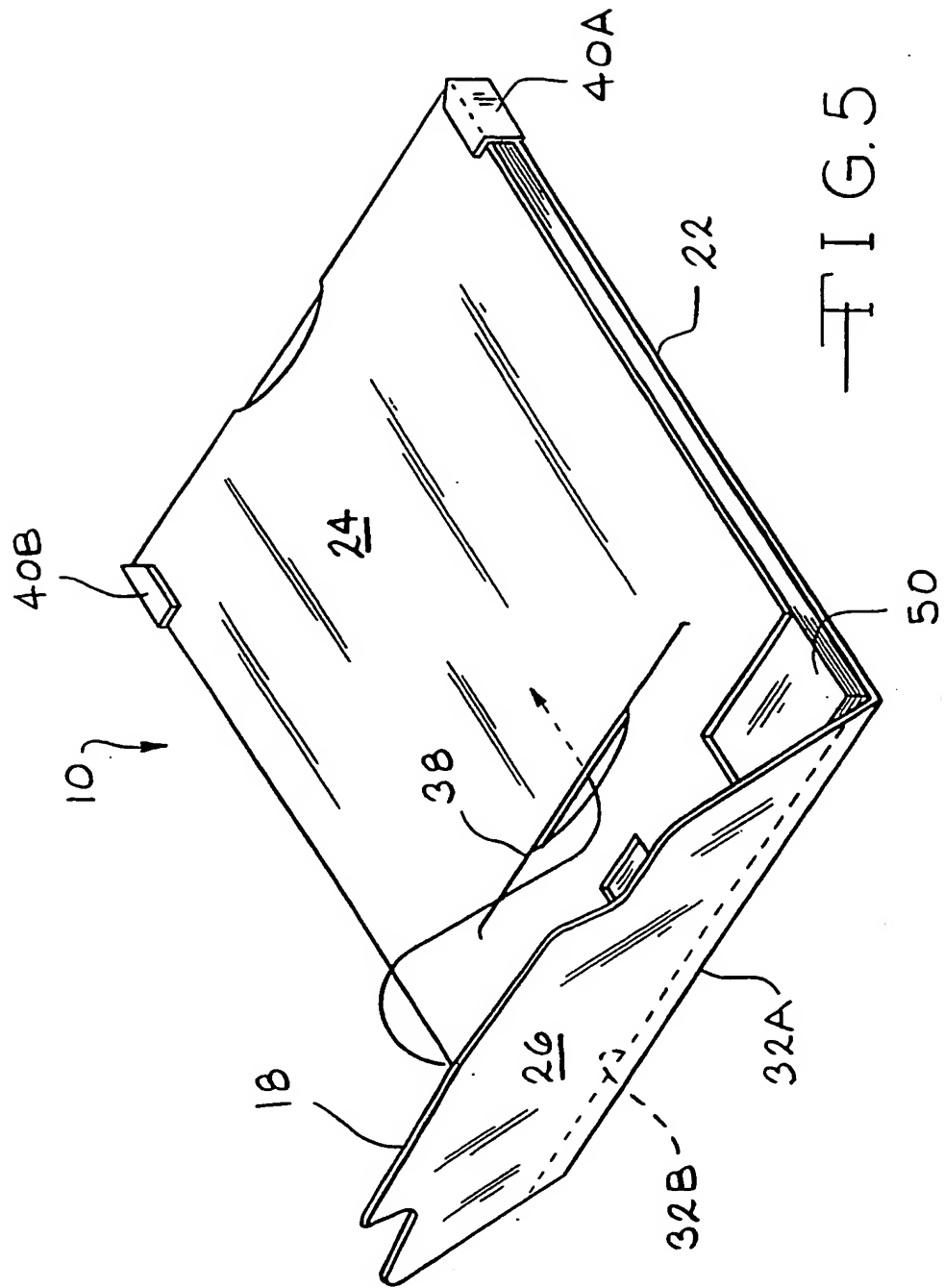


FIG. 3



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SUBSTITUTE SHEET (RULE 26)

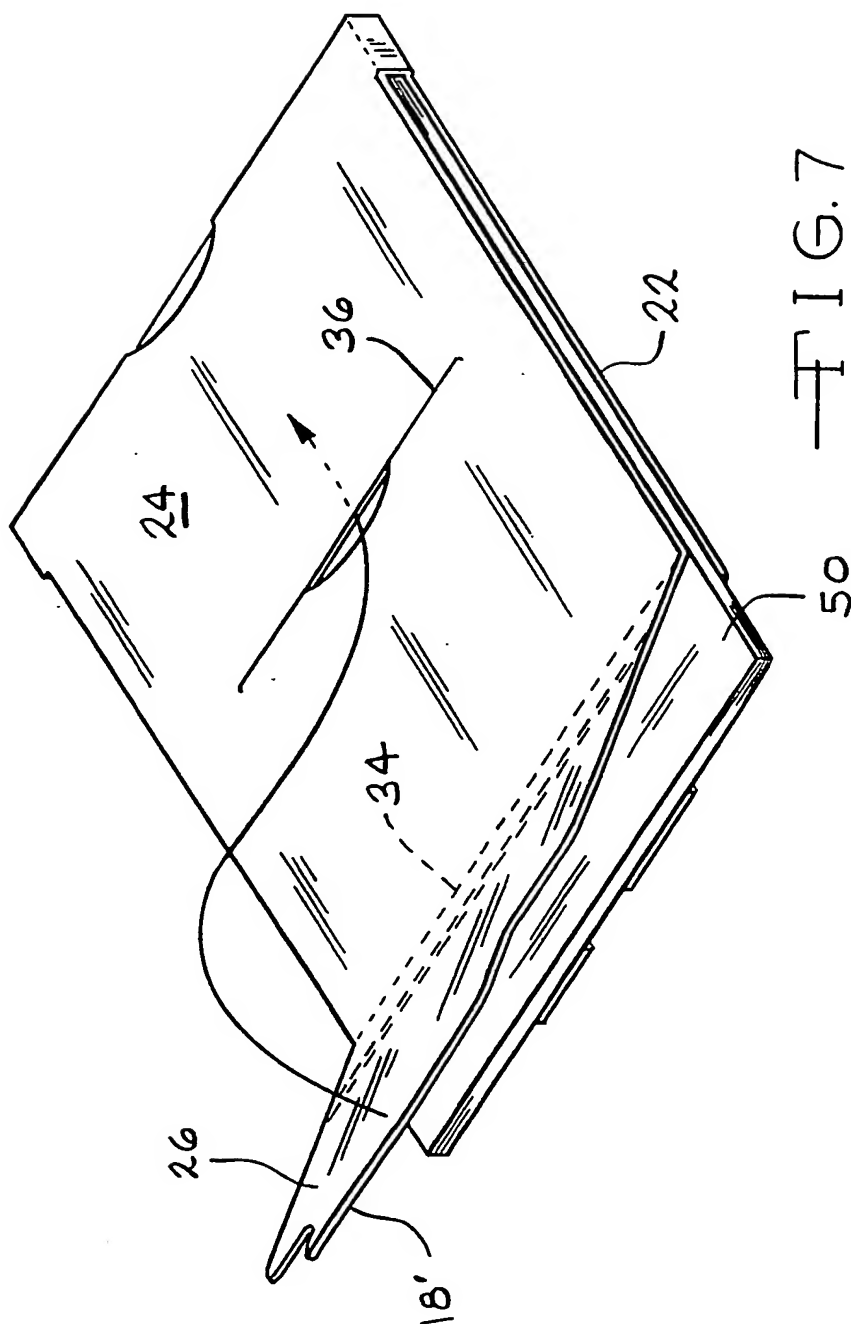


FIG. 7

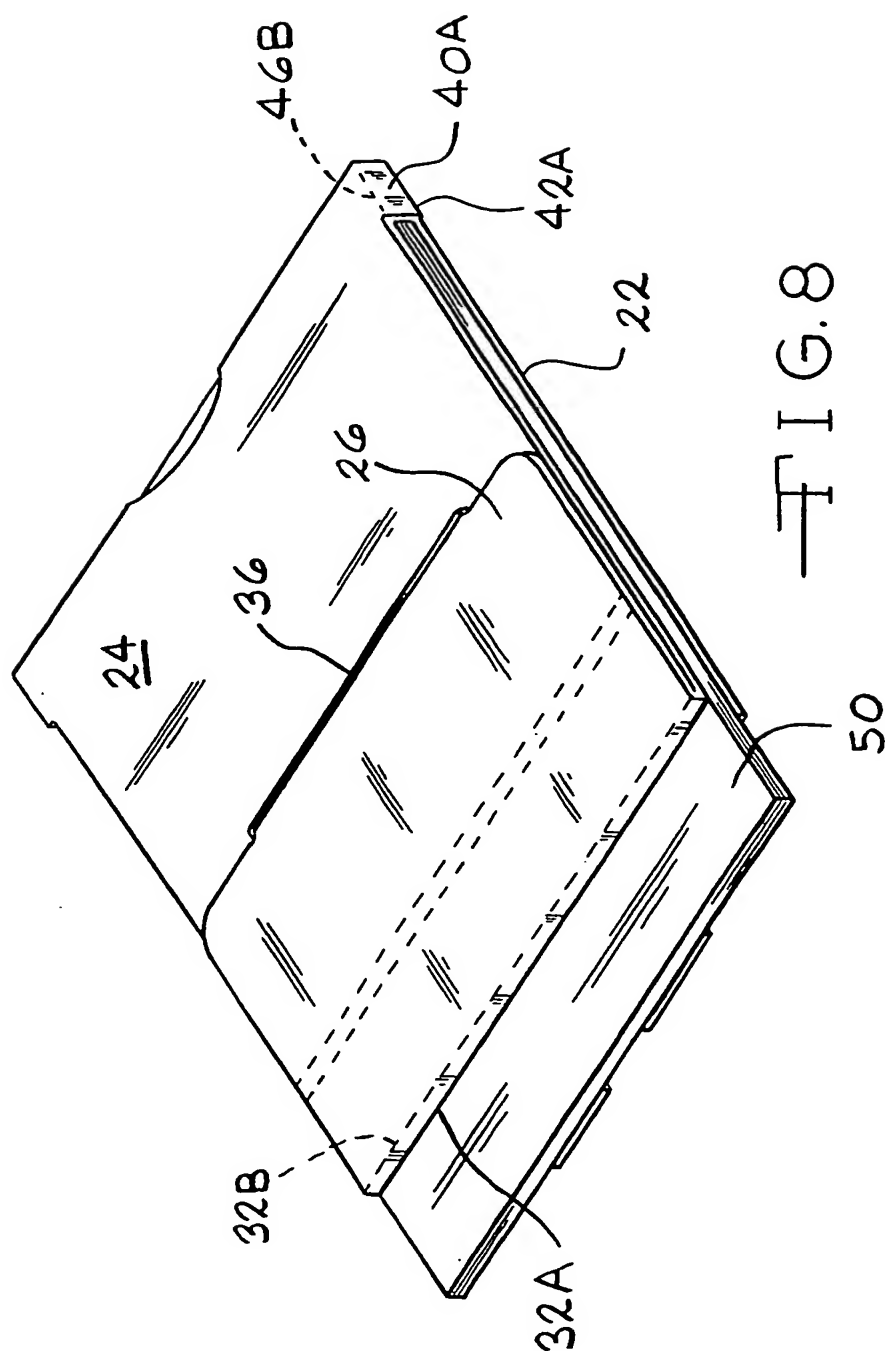


FIG. 8

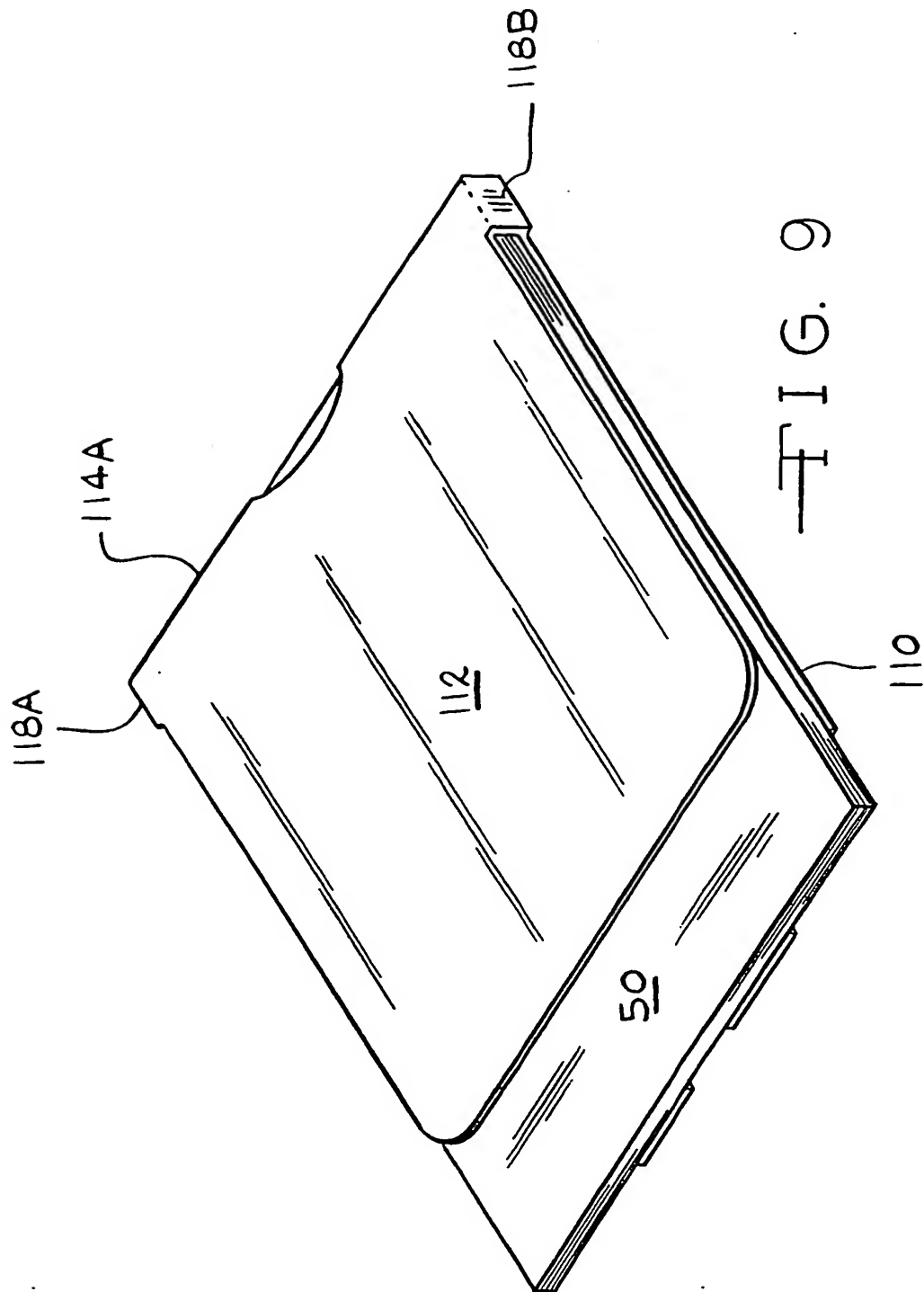


FIG. 9

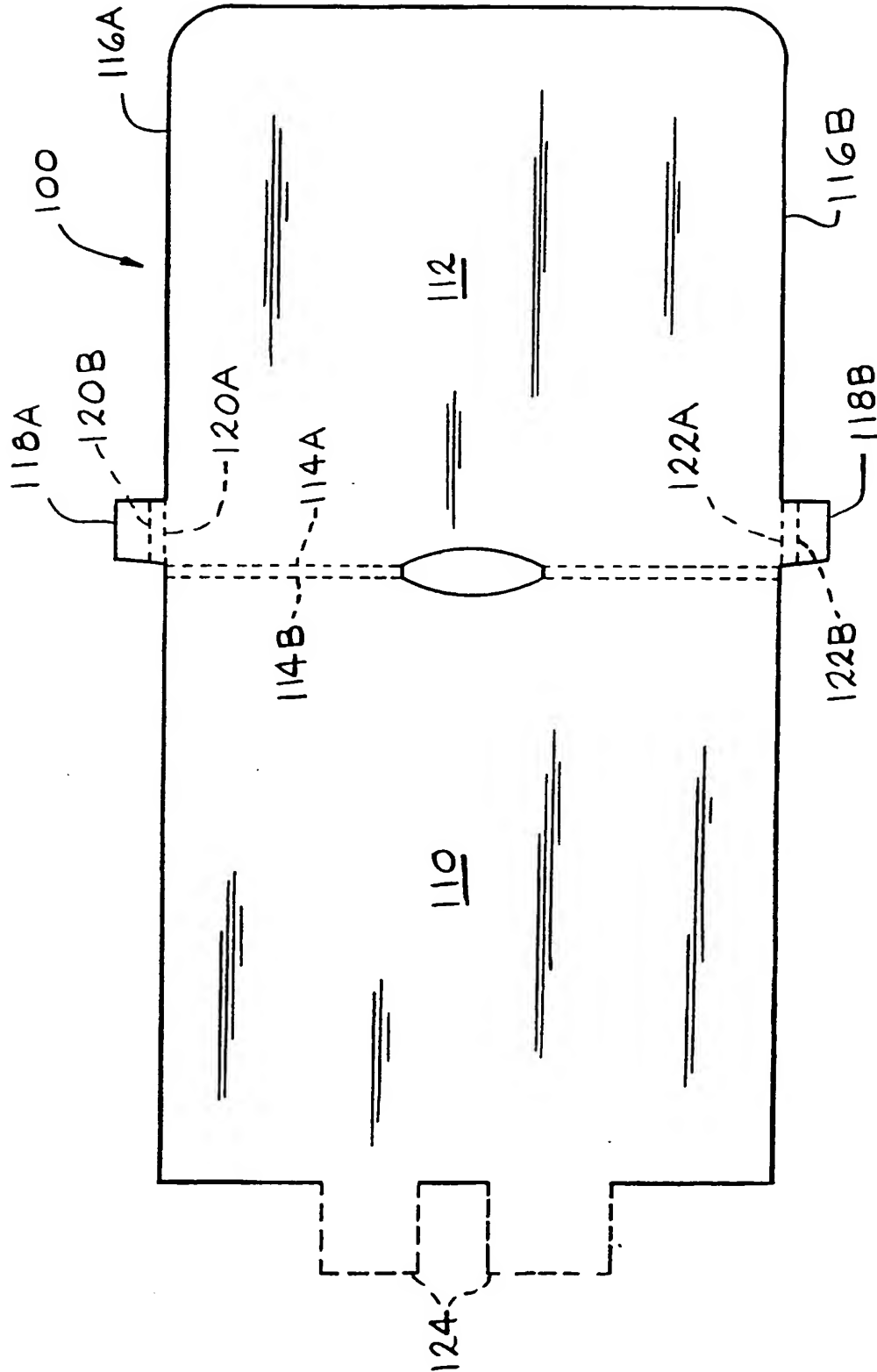


FIG. 10

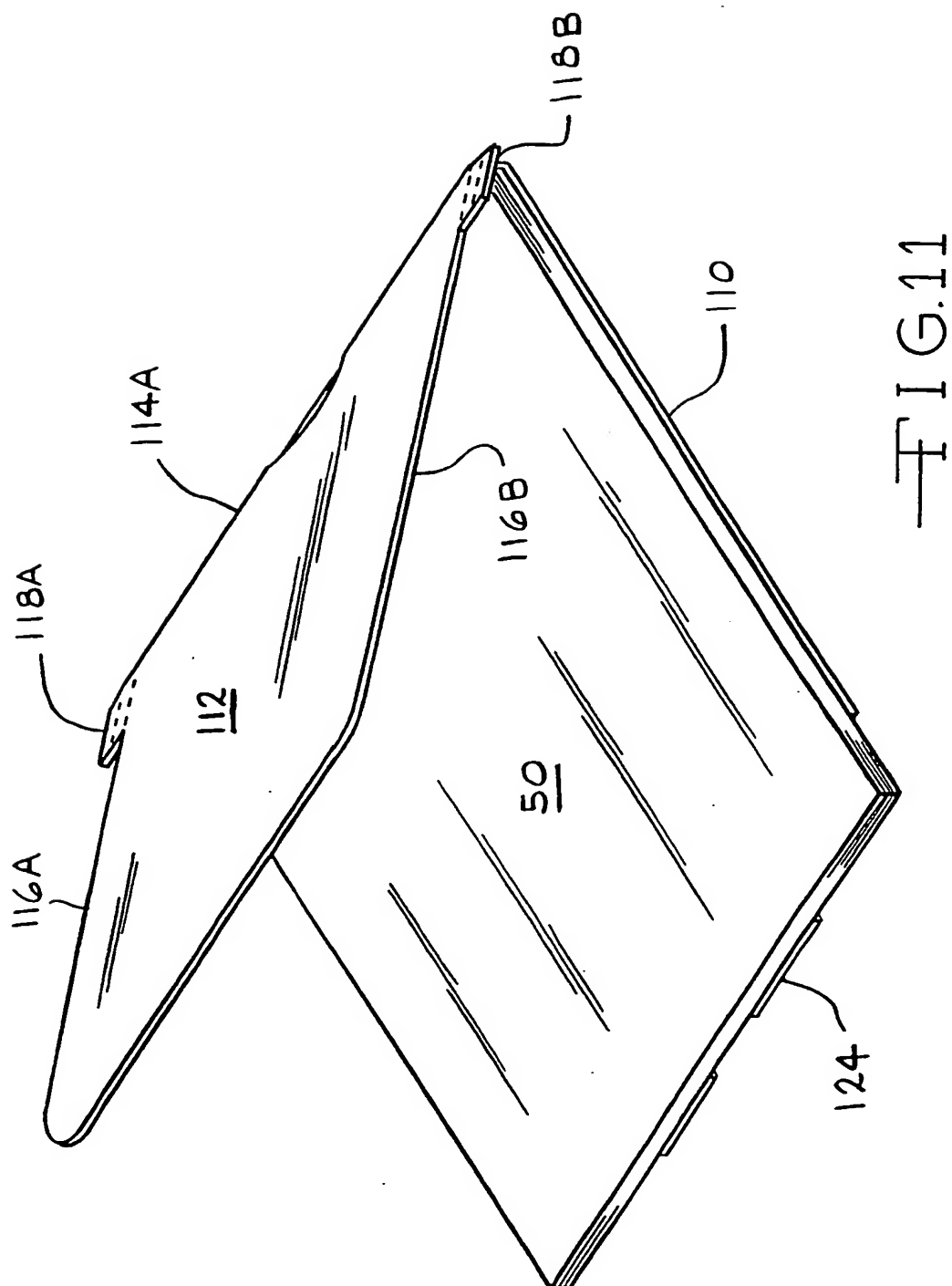
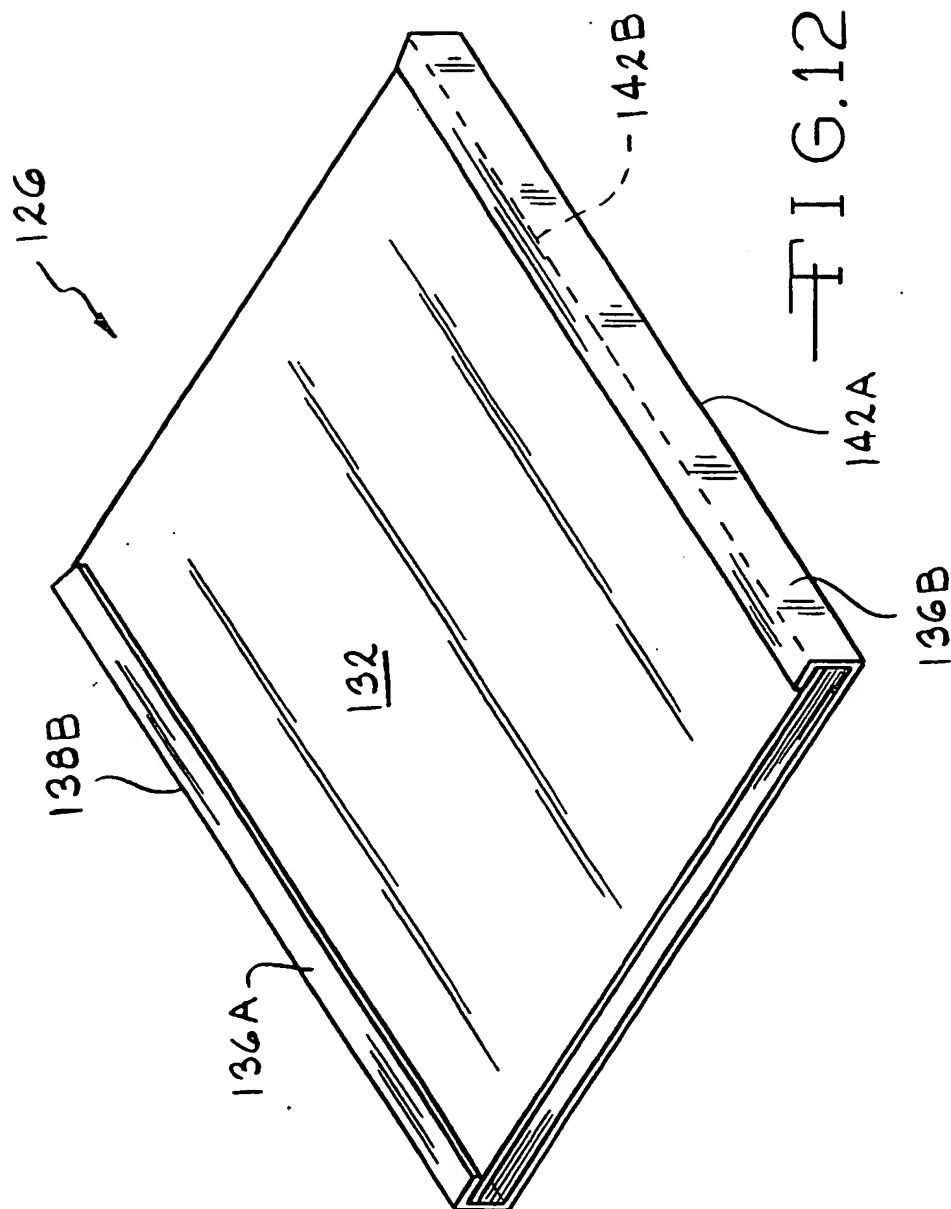


FIG. 11



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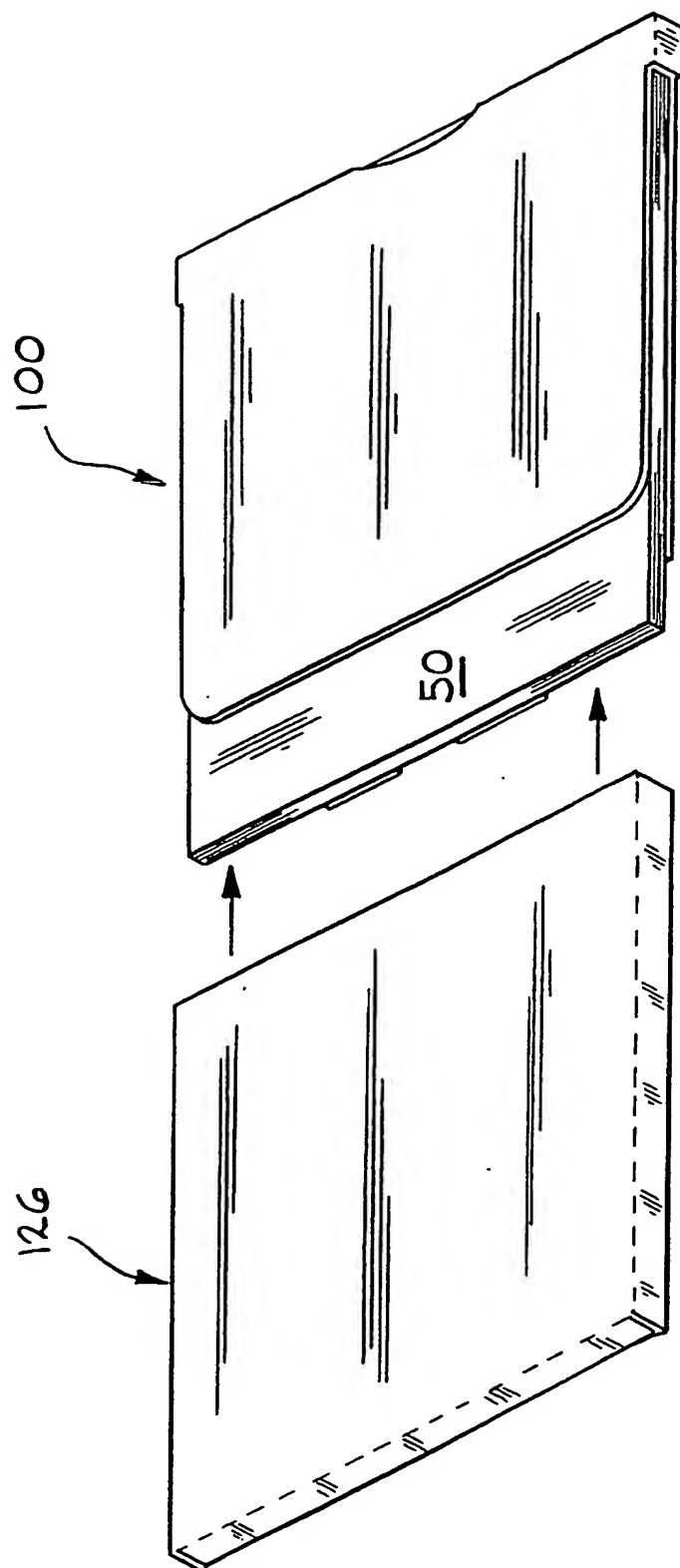
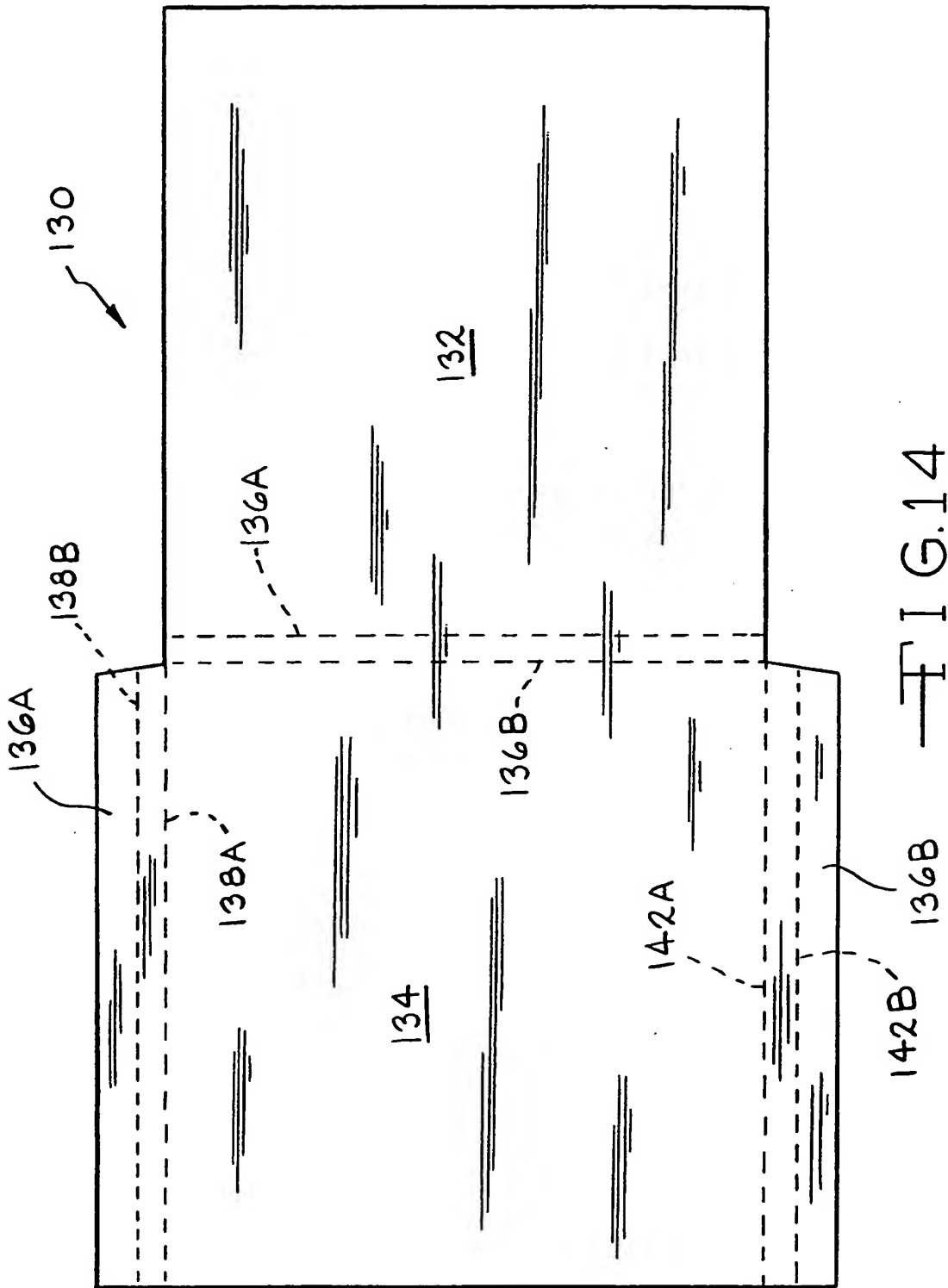


FIG. 13



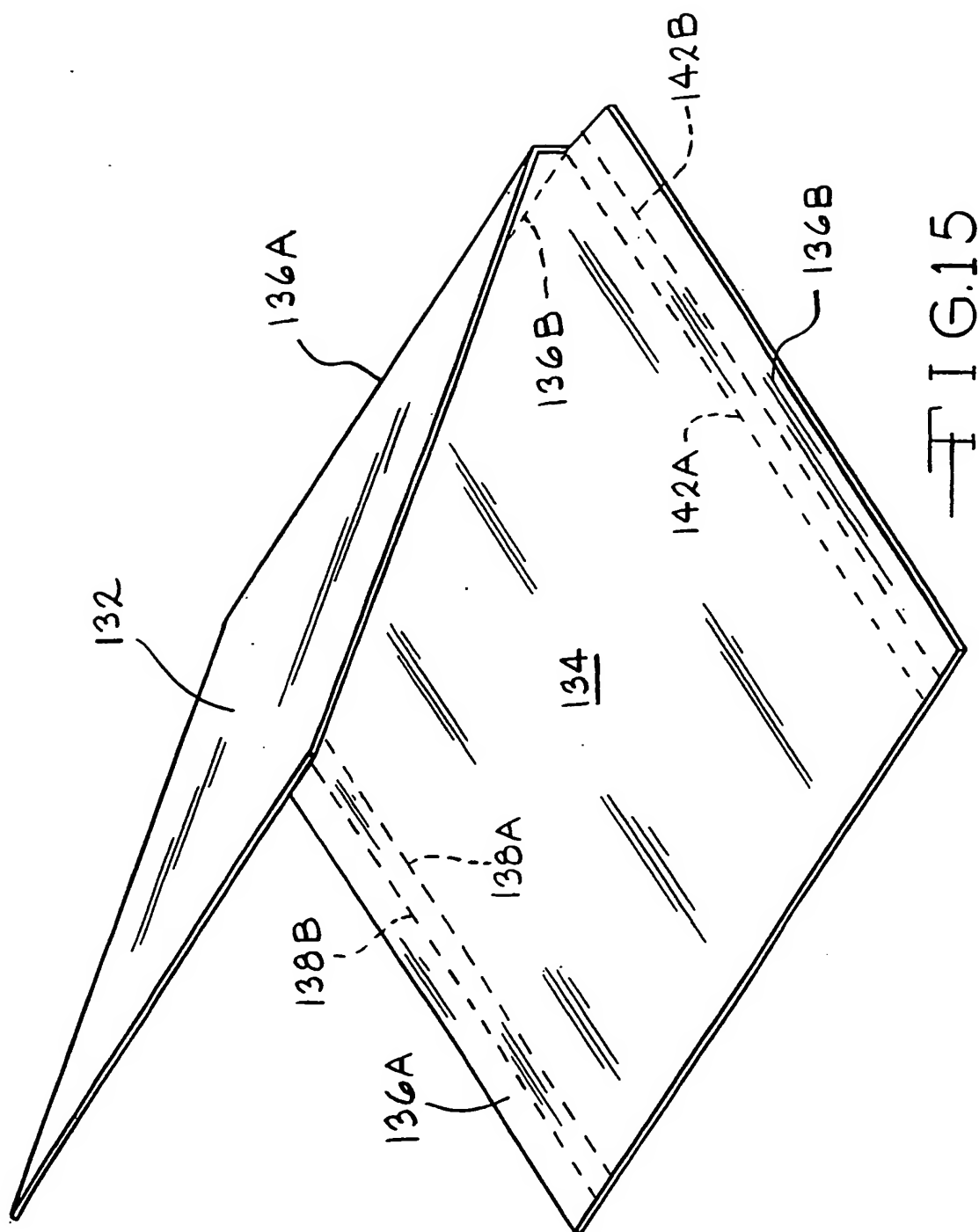


FIG. 15

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/05525

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B41J13/10 G03G15/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B41J G03G B65D B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 3 727 823 A (SULLIVAN W) 17 April 1973 see the whole document ---	1, 13
A	FR 2 610 898 A (GARNIER PONSONNET VUILLARD SA) 19 August 1988 see the whole document ---	1, 13
A	US 3 767 188 A (ROSENBERG C ET AL) 23 October 1973 see abstract; figures 1-4,8 ---	1, 13
A	PATENT ABSTRACTS OF JAPAN vol. 006, no. 220 (M-169), 5 November 1982 & JP 57 125072 A (SHINSHIYUU SEIKI KK), 4 August 1982 see abstract ---	1, 13
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 3 360 258 A (NIX GEORGE F) 26 December 1967 see abstract see column 4, line 37-44; figures 1,2 ----	1,13
A	US 4 185 745 A (KAUFMANN HEINRICH ET AL) 29 January 1980 see abstract -----	1,13

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